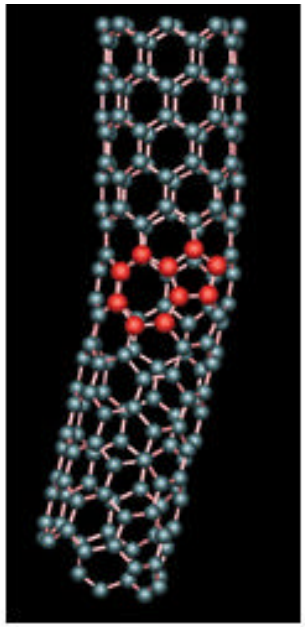
Materials Sciences Division

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY



Environment, Health, and Safety in the Materials Sciences Division

MSD 010, part B
Safety Overview for MSD Researchers

Required for all MSD Employees and Guests who perform research on the main site

last revised 10/9/00

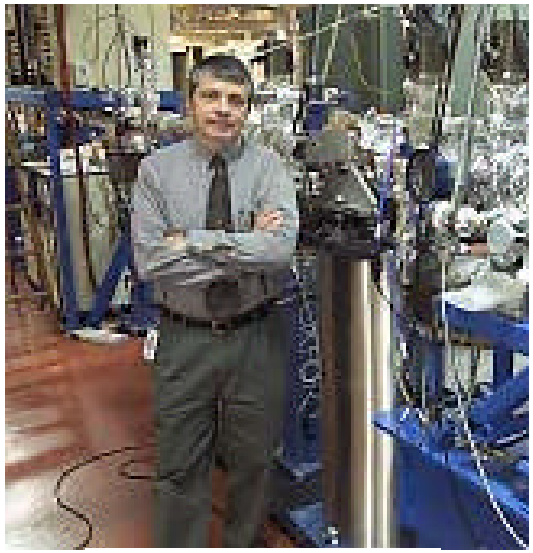
Safety Overview for MSD Researchers

- **MSD Safety resources**
  - **MSD Internal Web Site**
  - **MSD Safety Guidelines (Supplement to Pub 3000)**
  - **Group Safety Representatives**
- **MSD Training Program**
  - **MSD Training Checklist**
  - **MSD Training resources**
- **Chemical Inventory**
- **Satellite Accumulation Area (SAA)**
- **Activity Hazard Document (AHD)**

MSD Safety and Training Policies

- **MSD will conduct all of its operations in a manner that protects the health and safety of its employees and guests and that does not endanger the environment. All activities will be carried out in a manner consistent with all applicable LBNL, university and government agency policies.**
- **All employees and guests will be properly trained for the work that they perform**

Daniel Chemla, MSD Division Director



MSD Internal Web Site

MSD Web site: www.lbl.gov/msd

BERKELEY LAB

Materials Sciences Division

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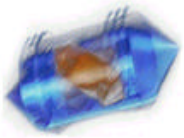
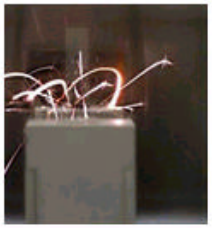
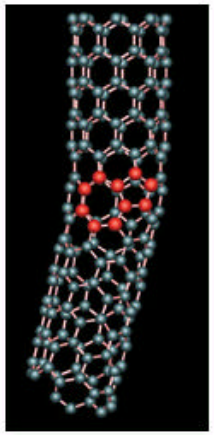






New in the Materials Sciences Division

Division Overview

Research Highlights

Scientific Staff

MSD Publications list

Internal

MSD Facilities Information and Rates

Washington Science and Technology Seminars

Search the MSD Website

A—Z Index LBNL Directory Search

Materials Sciences Division

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY

Internal Information

- MSD Office Phone Numbers
- Scientific Staff
- Materials Mumblings
- Standard Publications Acknowledgements
- **Safety**
  - MSD Safety and Training Policy
  - MSD Job Hazard Questionnaire
  - EHS Training Class Schedule
  - MSD Safety Bulletins and MSD Accident Reporter
  - Group Safety Representatives
  - MSD Safety Guidelines: HTML version, PDF version
  - Building Emergency Plans (includes emergency evacuation routes and
    - Bldgs. 62/62A/66
    - Bldg. 72
    - Bldg. 2
  - For PIs: Project Hazard Questionnaire (PHQ) and PHQ Glossary
  - Division Safety Plan
  - LBNL Pub 3000
  - LBNL Chemical Hygiene and Safety Plan (CHSP)
  - LBNL Guidelines for Hazardous Waste Generation and SAAs
  - Material Safety Data Sheets

MSD Safety Guidelines

2000 Version

Research activities in MSD can involve hazardous processes and materials. The information and rules presented here are designed to help you understand and maintain consistent safety practices. These guidelines are a supplement to LBNL's official safety document, LBNL PUBLICATION 3000.

All MSD employees and guests who work on the Hill should be familiar with the following Concepts and Terms

- **Publication 3000**
  Pub 3000 is the Environmental, Health, and Safety manual of Berkeley Lab and is the definitive guide to Laboratory safety and environment policies and procedures. It is located on the web at http://ehs.lbl.gov/ehsdiv/pub3000.
- **MSD Training Checklist**
  All MSD employees and guests who work on the LBNL main site must be fully trained before they can perform laboratory work. The sole exception is participating guests who are here for less than one week; they may do laboratory work without LBNL training but only under the direct supervision of someone who is trained. The MSD Training Checklist supercedes the Job Hazards Questionnaire and lists possible hazards involved in research in MSD laboratories and the required training classes for those hazards. Completion of this form is required before an employee/guest can work in an MSD lab.
- **Group Safety Representative**
  Each MSD research group on the LBNL main site has a group safety representative who is the group contact for safety related questions or problems.
- **Activity Hazard Document (AHD)**
  This document is required for high hazard research activities and equipment (e.g., use of fluorine gas, class IV lasers). The AHD describes the safe operating procedure for the equipenent or procedure.
- **Satellite Accumulation Area (SAA)**
  An SAA is a space in or near the research area set aside to temporarily (max. 275 days) store hazardous waste before it is picked up by Waste Disposal. No chemicals may be poured down the sink!
- **Building Emergency Plan**
  The building emergency plan explains to do in the event of fire, earthquake or other emergencies and describe your evacuation route out of the building. A copy of this document should be in each MSD office and is posted at all building entrances.
- **Stop Work Policy**
  All LBNL employees, contractors, guests, and visitors are to stop work IMMEDIATELY if they encounter or discover any work-related activities that constitute an imminent danger. Stopping unsafe work applies to all activities conducted at LBNL and all off-site facilities and locations
- **Laboratory Emergency Number**
  Dial x7911 from any lab phone to report emergencies

Group Safety Representatives

Group	Safety Representative	Alternate
Ager	Ager, Joel	
Alper/Stevens	Cheng, Quan (Jason)	
Attwood	Open	
Chemla	Fromer, Neil	
Dahmen	Ah Tye, Doreen	
De Jonghe	Doeff, Marca	
Fadley	Kay, Alexander W.	
Gronsky	Jamison, Robert	
Haller	Beeman, Jeff	
Haller	Bourret, Edith	Kellermann, Steffen
Hou	Hou, Peggy	
Krishnan	Cheng, Ning	
Morris	Miltin, David	Krenn, Chris
Orenstein	Segre, Gino	
Ritchie	McNaney, Jim	
Ross	Ross, Philip	Markovic, Nenad
Salmeron	Ogletree, Frank	
Shank	Schoenlein, Bob	Yeh, Alvin
Somorjai	Leo Romm	
Washburn	Swider, Wendy	
Weber	Istratov, Andrei	

Information current as of 10/99

MSD Training Program

- **All MSD employees and guests who work on the LBNL main site must be fully trained before they can perform laboratory work.**
  - **The sole exception is participating guests who are here for less than one week; they may do laboratory work but only under the direct supervision of someone who is trained.**
- **The MSD Training Checklist lists possible hazards involved in research in MSD laboratories and the required training classes for those hazards.**

MSD Training Checklist

(Supercedes LBNL and MSD Job Hazards Questionnaire)

Employee/guest **Name:** _____ **E-mail Required** _____

Signature _____ **Date** _____

Supervisor **Name**

Signature **Date**

This form must be completed, signed, and sent (via fax or mail) to the MSD EHS Administrator (Shanshan Taylor, fax x7768, M/S 2 -200) before an employee/guest is allowed to work in a Berkeley Lab main site laboratory

Employee/guest If your work involves any of the hazards listed below and you answer "yes" to the first question, you are required to complete **all** your **required** training before you can work in an MSD laboratory on the main Berkeley Lab site.
Supervisor. For each "yes" answer in the left hand column, confirm by checking the appropriate box that the employee/guest has satisfied the training requirement by either taking an EHS course, watching and understanding the appropriate video (either from the web or from the MSD Training CD), or by having a combination of prior experience (i.e. training classes taken at other institutions) and/or on-the-job training. Your signature above confirms that all current training requirements have been met.

Y/N		Required training courses	EH&S class	Video (web or CD)	Supervisor exemption
	Will you be working at the Berkeley Lab main site for more than one week?	**Required**: MSD 010A and 010B (video) **or** EHS 010/405/392 (EHS class or web video). These classes cover Introduction to EH&S, Hazard Communication and General Employee Radiation Training			
	Will you be working in a research laboratory?	**Required**: MSD 010C, Introduction to EH&S for MSD Researchers			
	Will/do you use a computer for more than an average of 4 hours/day?	***Recommended***: EHS 060 Ergonomics for Computer Users. A CD-ROM is available from the MSD EHS Administrator.			
	Will/do you work in a research lab or shop area that contains electrical equipment?	**Required**: EHS 260 Basic Electrical Hazard Awareness for Researchers.			
	Will/do you handle or use hazardous chemicals (e.g., corrosive, flammable, reactive, toxic) or routinely work where they are present?	**Required**: EHS 348 Chemical Hygiene Safety Training and EHS 604 Hazardous Waste Generator Training.			
	Will/do you use compressed gases and components such as regulators, valves, tubing, or gauges or cryogens such as liquid nitrogen.	**Required**: EHS 231 Compressed Gases and Cryogen Safety.			
	Will/do you operate an X-ray machine or work with X-rays?	**Required**: EHS 410 X-ray Machine Safety. By appointment with the X-ray Safety Officer, Ken Barat, KLBarat@lbl.gov, x7658			

EH&S Training Classes

- **Typical required classes for MSD researchers:**
  - **MSD 010/EHS 405 or EHS 010/392/405 Introduction to EH&S, Hazard Communication, and General Radiation Training**
  - **EHS 260 Electrical Safety**
  - **EHS 231 Pressure Safety**
  - **EHS 348 Chemical Hygiene**
  - **EHS 604 Hazardous Waste Generation**
  - ***EHS 410 X-ray Machine Safety, by appt.***
  - ***EHS 280 Laser Safety, by appt. with laser safety officer***

Meeting Training Requirements

- **Videotaped Training Classes and Self Tests**
  - Streaming video (from MSD Internal Web site, RealPlayer format)
  - MSD Training CD, available from MSD EHS Administrator
  - VHS videotapes, available for loan from Building Managers
- **EHS Class**
  - Classes offered 1-2 times per month
  - Schedule on EHS web site and in *Currents*
- **Supervisor exemption**
  - A supervisor may certify that a researcher/guest has received equivalent training by signing in appropriate part of Training Checklist
- **All required courses must be completed before a researcher can work in a laboratory**
  - Untrained individuals found working in a lab will be subject to disciplinary action including fines for their research advisor

Chemical Inventory

- **Every chemical container must be labeled with a bar code and entered into the LBNL Chemical Inventory database**
  - **It is the responsibility of the researcher to apply the bar codes and fill out the inventory sheet (cf. EHS 604) when new chemicals arrive.**
  - **Each group must send updated chemical inventory sheets to the Division Safety Administrator**

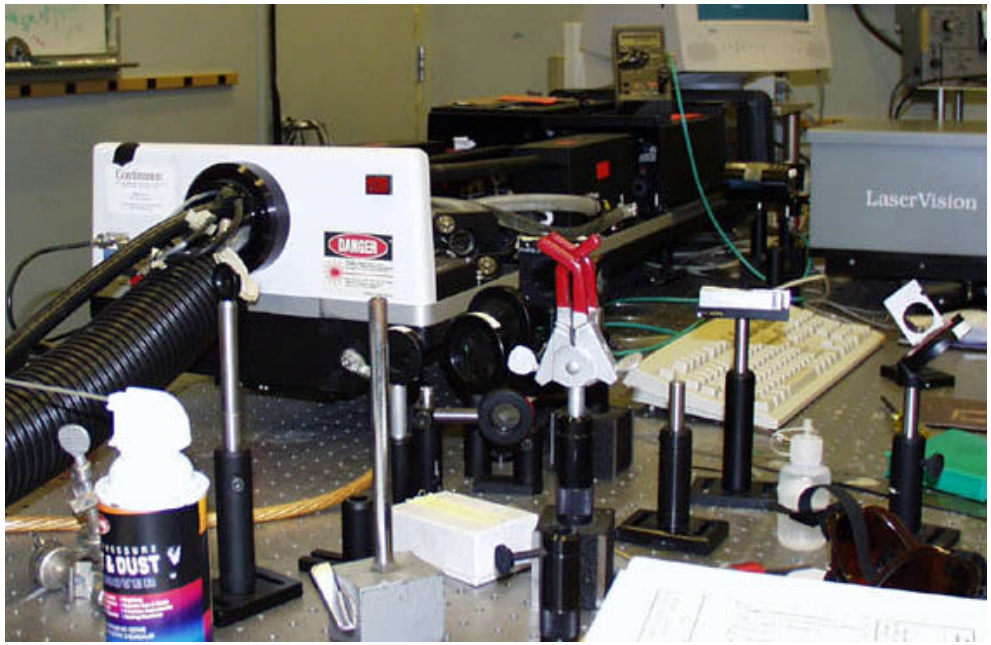
Satellite Accumulation Area (SAA)

- **Space set aside in lab to temporarily store hazardous waste**
  - **All waste must be labeled (cf. EHS 604, Hazardous Waste Generator Training).**
  - **EPA-mandated maximum storage time is 275 days**
- **LBNL has an outside contractor to handle the lab's hazardous waste**

Unless you are authorized to do so not dispose of any chemicals down the drain!

Activity Hazard Document (AHD)

- **Document that identifies hazards and describes safe operation of equipment and/or experiment**
- **Examples of activities requiring an AHD**
  - **Class IV lasers**
  - **X-ray diffractometers**
  - **High Voltage Electron Microscope**
  - **Hydrogen use; use of Na and Li metals**



All researchers must read and understand the AHD before using the equipment or performing the experiment